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REC'D 20 OCT 2003  
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Patentanmeldung Nr. Patent application No. Demande de brevet n°

02292278.5

**PRIORITY DOCUMENT**  
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Der Präsident des Europäischen Patentamts;  
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For the President of the European Patent Office

Le Président de l'Office européen des brevets  
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Anmeldung Nr:  
Application no.: 02292278.5  
Demande no:

Anmeldetag:  
Date of filing: 17.09.02  
Date de dépôt:

Anmelder/Applicant(s)/Demandeur(s):

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Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:  
(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.  
If no title is shown please refer to the description.  
Si aucun titre n'est indiqué se referer à la description.)

Hybrid chip

In Anspruch genommene Priorität(en) / Priority(ies) claimed / Priorité(s)  
revendiquée(s)  
Staat/Tag/Aktenzeichen/State/Date/File no./Pays/Date/Numéro de dépôt:

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Classification internationale des brevets:

H01L21/00

Am Anmeldetag benannte Vertragstaaten/Contracting states designated at date of  
filing/Etats contractants désignées lors du dépôt:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

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### **Claims**

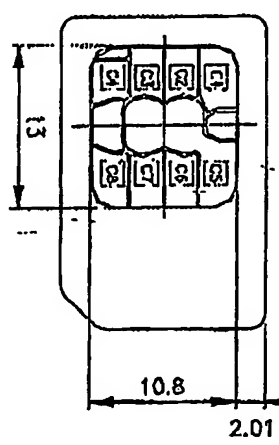
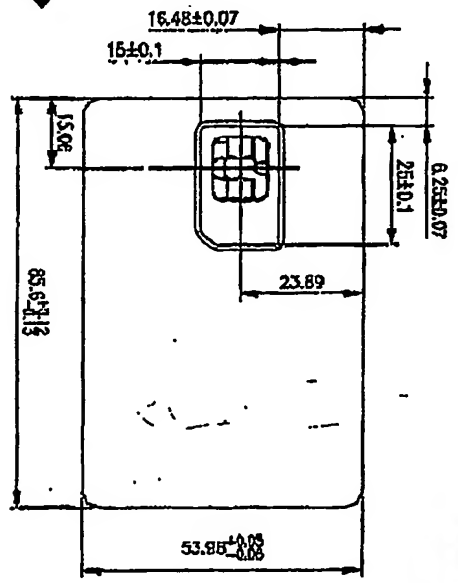
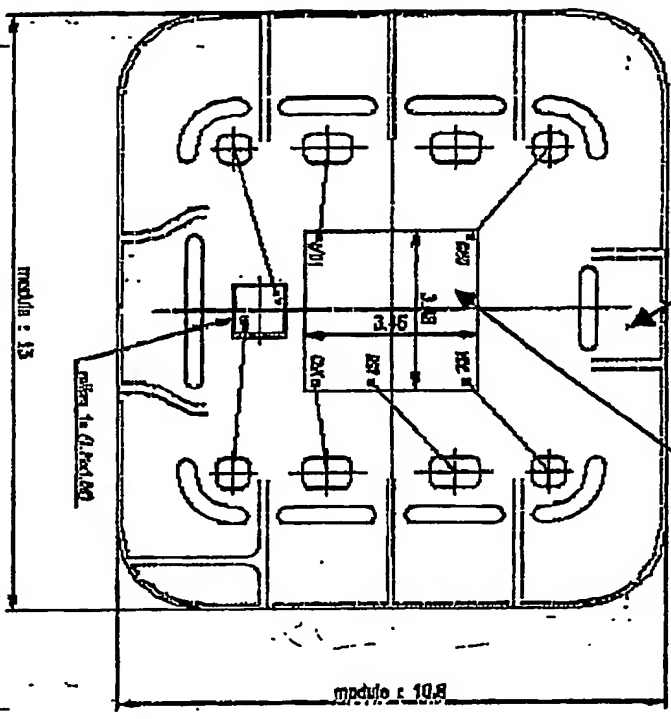
- 1. An hybrid device comprising an hybrid module wherein the hybrid module comprises an integrated circuit.**

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# Chips bonded side by side

MODULE

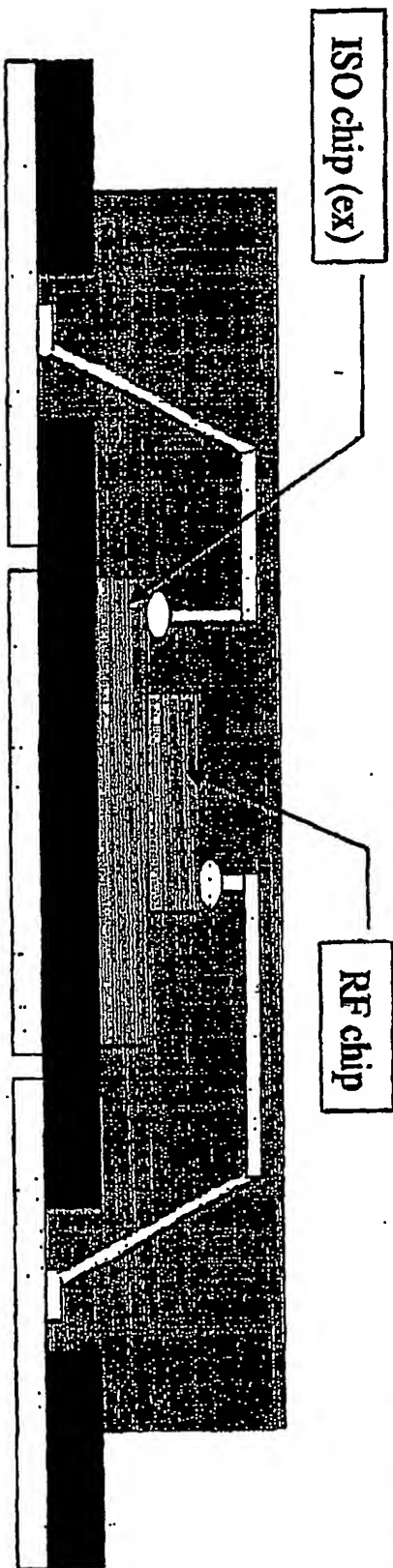
ISO chip (ex)



- standard process and equipment;
- linked to requested chip, module modification certainly needed

**SchlumbergerSema**

# Stacked chips (1/2)

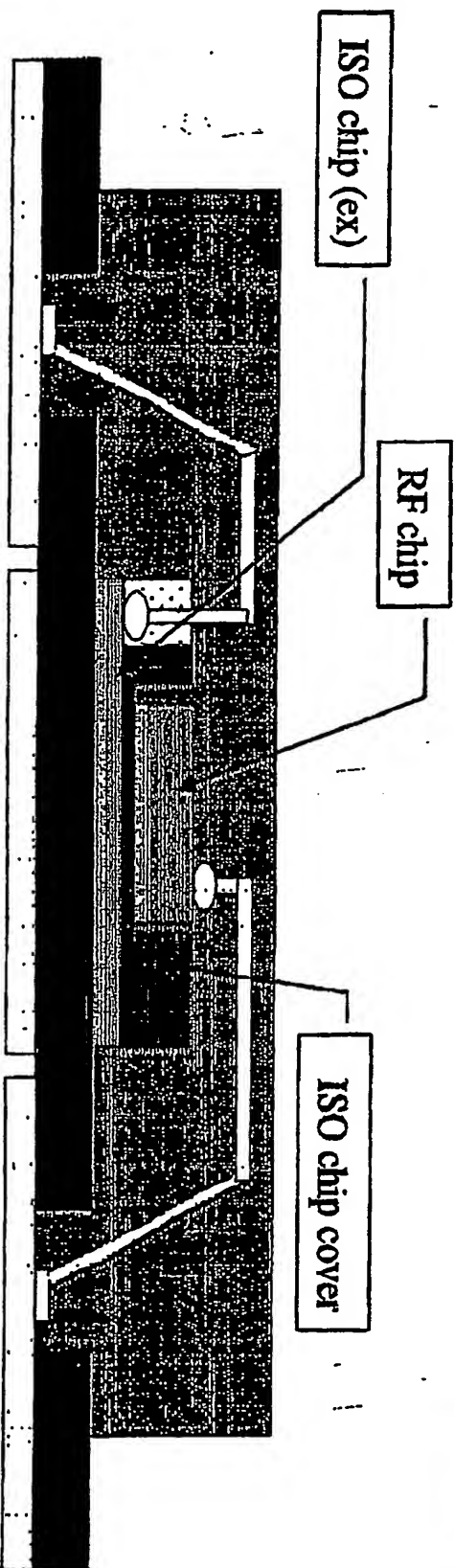


- flexible solution,
- need to use thin chips (80-100 $\mu$ m Vs 180 $\mu$ m in standard):
  - $\Rightarrow$  lot of contacts already exist with founders or subcontractors able to thin wafers,
  - $\Rightarrow$  handling of thin wafer already in Schlumberger culture,
  - $\Rightarrow$  characterisation method for thin silicon mechanical behaviour designed:

**SchlumbergerSema**

# Stacked chips (2/2)

⇒ to limit use of very thin wafers, used of Schlumberger SiShell technology:



⇒ For other project, Schlumberger developed a technology consisting in process very thin wafer (40 $\mu$ m) on which is bonded a silicon cover:

- the RF chip is placed in an hole in the cover ⇒ no more need to thin the wafer,
- technology already mastered by Schlumberger ⇒ workshop and process set up in 2001

**SchlumbergerSema**